

INDIVIDUAL PROPERTY/DISTRICT
MARYLAND HISTORICAL TRUST
INTERNAL NR-ELIGIBILITY REVIEW FORM

Property/District Name: Loch Raven Dam Survey Number: BA-2736

Project: Rehabilitation of Dam Agency: F/COE

Site visit by MHT Staff: ☒ no ☐ yes Name _____ Date _____

Eligibility recommended _____ Eligibility not recommended ☒

Criteria: ☐ A ☐ B ☐ C ☐ D Considerations: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ None

Justification for decision: (Use continuation sheet if necessary and attach map)

As a component of the Baltimore City water system, the existing Loch Raven Dam was constructed between 1912-1914. The concrete gravity dam consisted of the spillway, gatechambers, gatehouse and conduit to Lake Montebello. Located 7 miles northeast of Baltimore city line, the dam and reservoir was one component of the water system which utilized the Gunpowder Falls. The 1912 dam and reservoir replaced a late nineteenth century dam located down stream. To address the City's growing population and water needs, the City built the Loch Raven Dam and then increased the dam's capacity by raising the spillway to 240ft in 1920-22.

The dam which exists today does not exhibit its early 20th century appearance. In 1977, the City undertook extensive rehabilitation work. Consisting of the reconstruction of the spillway, construction of the observation deck and the renovation of the gatehouse, the dam no longer retains its historic integrity. The non-historic alterations in the 1970s and 1980s have substantially rebuilt the dam. Due to the altered physical appearance and new materials, I believe that the dam is not eligible under criteria a or c because its character-defining features are no longer present to convey their significance.

Documentation on the property/district is presented in: Maryland Inventory

see also Prettyboy Dam BA-2732 for more historic context

Prepared by: Katie O'Meara, architect

Lauren Bowlin March 6, 1996
Reviewer, Office of Preservation Services Date

NR program concurrence: ☒ yes ☐ no ☐ not applicable

Peter G. Kuntz 3/11/96
Reviewer, NR program Date

gmg

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA - HISTORIC CONTEXT

I. Geographic Region:

☐ Eastern Shore (all Eastern Shore counties, and Cecil)
☐ Western Shore (Anne Arundel, Calvert, Charles, Prince George's and St. Mary's)
☒ Piedmont (Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery)
☐ Western Maryland (Allegany, Garrett and Washington)

II. Chronological/Developmental Periods:

☐ Paleo-Indian 10000-7500 B.C.
☐ Early Archaic 7500-6000 B.C.
☐ Middle Archaic 6000-4000 B.C.
☐ Late Archaic 4000-2000 B.C.
☐ Early Woodland 2000-500 B.C.
☐ Middle Woodland 500 B.C. - A.D. 900
☐ Late Woodland/Archaic A.D. 900-1600
☐ Contact and Settlement A.D. 1570-1750
☐ Rural Agrarian Intensification A.D. 1680-1815
☐ Agricultural-Industrial Transition A.D. 1815-1870
☒ Industrial/Urban Dominance A.D. 1870-1930
☒ Modern Period A.D. 1930-Present
☐ Unknown Period (☐ prehistoric ☐ historic)

III. Prehistoric Period Themes:

☐ Subsistence
☐ Settlement
☐ Political
☐ Demographic
☐ Religion
☐ Technology
☐ Environmental Adaptation

IV. Historic Period Themes:

☐ Agriculture
☒ Architecture, Landscape Architecture, and Community Planning
☐ Economic (Commercial and Industrial)
☐ Government/Law
☐ Military
☐ Religion
☐ Social/Educational/Cultural
☐ Transportation

V. Resource Type:

Category: structureHistoric Environment: rural/suburbanHistoric Function(s) and Use(s): damKnown Design Source: Baltimore City Dept. of Public Works

Maryland Comprehensive Historic Preservation Plan Data
for: Upper Dam at Loch Raven

Historic Context

Geographic Piedmont
Organization:

Chronological Industrial/Urban Dominance
Development A.D.1870-1930
Period(s):

Historic Period Architecture, Community Planning
Themes: Government/Law

Resource Type

Category: Structure

Historic Location: Suburban
Environment: Function: Urban (water supply)

Historic Function(s) Water Supply Infrastructure
and Use(s):

Known Design Source: Baltimore City Water Department,
and consulting engineers

**Maryland Historical Trust
State Historic Sites Inventory Form**

MARYLAND INVENTORY OF
HISTORIC PROPERTIES

Survey No. BA 2736

Magi No.

DOE ___yes ___no

1. Name (indicate preferred name)

historic Loch Raven Dam

and/or common

2. Location

street & number approximately 1 mile north of Cromwell Bridge — not for publication

Road on Loch Raven Boulevard
city, town Towson — vicinity of — congressional district

state Maryland county Baltimore

3. Classification

Category	Ownership	Status	Present Use	<input checked="" type="checkbox"/> water supply infrastructure
<input type="checkbox"/> district	<input checked="" type="checkbox"/> public	<input type="checkbox"/> occupied	<input type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input checked="" type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input type="checkbox"/> site	Public Acquisition	Accessible	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input checked="" type="checkbox"/> government	<input type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial	<input type="checkbox"/> transportation
	<input checked="" type="checkbox"/> not applicable	<input type="checkbox"/> no	<input type="checkbox"/> military	<input checked="" type="checkbox"/> other:

4. Owner of Property (give names and mailing addresses of all owners)

name City of Baltimore, Mayor & City Council

street & number City Hall, Room 250 telephone no.:

100 North Holliday Street

city, town Baltimore, Maryland state and zip code 21202

5. Location of Legal Description

courthouse, registry of deeds, etc. please see attached sheet liber

street & number folio

city, town state

6. Representation in Existing Historical Surveys

title please see attached sheet

date ___ federal ___ state ___ county ___ local

pository for survey records

city, town state

7. Description

Survey No. BA 2736

Condition

☐ excellent
☐ good
☐ fair

☒ deteriorated
☐ ruins
☐ unexposed

Check one

☐ unaltered
☒ altered

Check one

☒ original site
☐ moved date of move _____

Prepare both a summary paragraph and a general description of the resource and its various elements as it exists today.

please see attached sheets

8. Significance

Survey No. BA 2736

Period	Areas of Significance—Check and justify below			
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400–1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500–1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600–1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/
<input type="checkbox"/> 1700–1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian
<input type="checkbox"/> 1800–1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater
<input checked="" type="checkbox"/> 1900–	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> transportation
		<input type="checkbox"/> invention		<input type="checkbox"/> other (specify)

Specific dates

Builder/Architect

check: Applicable Criteria: ☒ A ☐ B ☐ C ☐ D
and/or

Applicable Exception: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Level of Significance: ☐ national ☐ state ☐ local

Prepare both a summary paragraph of significance and a general statement of history and support.

please see attached sheets

9. Major Bibliographical References

Survey No. BA 2736

please see attached sheet

10. Geographical Data

Acreage of nominated property not applicable/structure

Quadrangle name Towson

Quadrangle scale 1"=2,000 feet

UTM References do NOT complete UTM references

A

--	--	--	--	--	--	--	--	--	--

Zone Easting Northing

B

--	--	--	--	--	--	--	--	--	--

Zone Easting Northing

C

--	--	--	--	--	--	--	--	--	--

D

--	--	--	--	--	--	--	--	--	--

E

--	--	--	--	--	--	--	--	--	--

F

--	--	--	--	--	--	--	--	--	--

G

--	--	--	--	--	--	--	--	--	--

H

--	--	--	--	--	--	--	--	--	--

Verbal boundary description and justification

List all states and counties for properties overlapping state or county boundaries

state not applicable code county code

state code county code

11. Form Prepared By

name/title Kathleen M. O'Meara

organization OM Architecture

date 9/20/96

street & number 110 South Stricker Street

telephone (410) 362-0077

city or town Baltimore

state Maryland 21223

The Maryland Historic Sites Inventory was officially created by an Act of the Maryland Legislature to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 supplement.

The survey and inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

return to: Maryland Historical Trust
Shaw House
21 State Circle
Annapolis, Maryland 21401
(301) 269-2438

MARYLAND HISTORICAL TRUST
DHCP/DHCD
100 COMMUNITY PLACE
CROWNSVILLE, MD 21032-2023
514-7600

Maryland Historical Trust State Historic Sites Inventory Form
Loch Raven Dam

Item 5:

Location of Legal Description:

Review of The Loch Raven Dam in The Land Records Department of Baltimore County showed the Loch Raven Reservoir Area on tax maps 52,53,61 and 62 with the dam located on map #62.

The Owner named on the tax map is Mayor and City Council (of Baltimore City).

No deed reference number is recorded for the property on map #62 nor on any of the other three maps showing the reservoir area.

Referring to:

The Grantor/Grantee Index for "Mayor and City Council" as grantee

volume #25 July 1st 1895 - December 31, 1904

Referring to this volume in the year 1898 on page 76, thirty four consecutive transactions by the Mayor and City Council are listed, thus the possibility of a large event or project. Referring to these transactions in folio #233, many found were related to Loch Raven Dam and the Gunpowder Falls. Some indicated land purchase, but most were settlements of suits regarding mud and silt damage or the possibility of damage, and stream bed rights. Clearly, there was activity regarding the Gunpowder Falls and the dam, however, no clear deed for the property was found.

Maryland Historical Trust State Historic Sites Inventory Form

Item 6:

Representation in Existing Historical Surveys:

The Commission for Historical and Architectural Preservation (CHAP) has no research material on the Loch Raven Dam in their files (see attached letter, page 6.2).

The Library of Congress Historic American Buildings Survey (HABS) file and Historic American Engineering Record (HAER) file have no reference to the Loch Raven Dam.

Item 7. Description

Summary:

The Loch Raven Dam is a concrete gravity dam on the Gunpowder River in Baltimore County¹, built 7 miles northeast of the city limits (now measuring about 4.5 miles) approximately 2500 feet upstream from the dam built in 1881².

In 1908 the State Legislature appropriated \$5 million dollars for the new dam. Construction started in 1912 and was completed in 1914.

The dam project included the spillway, the non-overflow sections on each bank, the gatechambers and temporary gatehouse and the conduit connecting the new dam to the existing tunnel to Lake Montebello³.

The dam had been built lower than originally planned to an elevation of 188 AMT⁴, and was modified in 1917 with steel tilt up sections, then raised permanently in 1922 with a new concrete spillway and overflow sections. This new construction added 52 feet to the elevation bringing it to 240.00 AMT. At this time the new gatehouse was constructed.

Between 1922 and 1971 several projects were undertaken relating to the conduit to Lake Montebello and the gatehouse inlets. In 1977 more extensive work was done on the dam included rebuilding the spillway, a new observation deck, adding to and reworking the gatehouse, applying stone facing to the non-overflow sections and removing the venturi gates and installing new valves.

In 1983 the spillway crest was rebuilt and refaced with mortar⁵. In 1994 work was undertaken on the Zebra Mussel control project.⁶

Today the dam is poor condition, in need of much repair, with the integral drains closed with calcareous deposits that inhibit water discharge, and render the low level reservoir drains inoperable. The stability of the spillway and non-overflow sections is inadequate and concrete surfaces are cracked and delaminating.⁷

¹see maps 1,2, and 3; location map, USGS topographical map. and Resource Sketch Map

²See photo #1, original stone dam at Loch Raven, present condition 1995

³see dwgs 1,2, and 3; Plan and South Elevation, as shown in 'present dam' dwgs from raising the dam, contract #49, city of Baltimore, Feb. 23, 1924; Design profile, report of the water board, 1913; and drainage system, Baltimore City Water Board, contract #1, 2-8-12

⁴ AMT - Accepted Mean Tide

⁵see dwgs 5 and 6, plan and elevations showing dam with 1977 observation deck and stone facing from 1983 resurfacing contract Overall Plan and Elevations, Whitman Requeardt, and Assoc, engineers, sheets 2 and 3 of 3 water contract #1000 February 23, 1983

⁶ See photos #2-9 Present conditions; photos taken 1995

⁷ City of Baltimore Loch Raven Dam Conceptual Design Report 1993 p ES-1
Page 7.1

Original Structure: 1912-1914

The spillway is an uncontrolled, 288' wide, cyclopean concrete structure with an ogee shaped configuration at the crest⁸. Originally designed to a height of 233.5 at the spillway crest, it was built only to elevation 188.00 AMT or a height of 85.6' (upstream face to face of ogee) with the spillway crest elevation at 188 AMT. Difficulty securing property upstream in the reservoir area prohibited construction to any higher elevation at the time. However, the foundations were constructed to accomodate the original design height of spillway crest elevation at 233.5 AMT, thus allowing the top of the dam to be raised at a later date without further excavation in the riverbed⁹.

The dam design and construction incorporated an integral drainage and foundation drainage system to prevent internal water pressure from building up in the concrete¹⁰. The system carries away any water seepage at the construction joints with a drain trough that was formed into each lift of concrete as it was poured. This horizontal drain leads to a vertical trough, or well which was formed at each expansion joint. These wells open into the lower drainage gallery which has pipes leading to the pool below the dam. This drainage system design was considered an improvement upon the designs of Olive Bridge and Kensico dams of the New York water system which were studied in the development of the Loch Raven scheme¹¹, though these design improvements are not noted as significant in other sources on the subject.

The **non-overflow sections** on each bank were built to elevation 202 AMT. the two gatechambers are housed on the west bank with duplicate gates to control the flow of water to the city through one or both chambers. Each is 8 feet in diameter feeding into one 10 foot diameter conduit just below the gatehouse. A temporary gatehouse was erected above the chamber with plans for a more permanent one to be built after raising the dam elevation.

A venturi meter and 10' diameter steel pipe conduit, 2,465' long, lined with mortar and set on concrete cradles and cased in concrete, connected the new gate chambers with the existing tunnel to Lake Montebello.^{12, 13}

Structural Steel Tilting Dam 1917:

The tilting dam was constructed on top of the existing dam, anchored to keyways built into the existing dam, bringing the spillway elevation to a height of 192.00 AMT, the new height being allowed as land and water level disputes were resolved. The design of this dam was a pivoting obtuse angle that formed a hollow dam of structural steel with 2-1/2" timber decking. This was built in 27 units of 4'-0" high

⁸see dwg #2, design profile, Annual Report of the Water board 1913

⁹ Report of the Water Board, 1914 pp64,70

¹⁰ See dwg #3 p65 Annual Report of the Water board 1913

¹¹Report of the Water Board 1914 p64

¹²"Report of the Water Board"1913pp52-60+-,1914pp64-67+-

¹³ See dwg #4 p 63 Annual Report of the Water board 1913

Inventory # BA 2736

panels forming six units arranged to tilt at different water elevations. The minimum water elevation to induce tilting was 1.5 feet over the crest or 193.5 AMT. Other sections tilted as water levels rose, with the dam dropping back when water levels dropped to 188.75 or so.

Raising of the Dam 1918-1922:

In 1918 Baltimore City annexed an additional 50 square miles and needed to increase the city water supply. Construction started in 1920 to raise the elevation of the Loch Raven dam. The elevation of the new spillway crest became 240.00 AMT and the non-overflow sections were raised to 248.00 AMT. The new construction was concrete, and seemed to follow the project drawings for it, but less information is available about actual construction methods. A new stone-masonry gatehouse was also constructed on the crest on the right non-overflow section as a part of the 1922 project.¹⁴

New Tunnel 1940:

In 1940 a new 12' diameter, 7 mile long concrete lined gravity flow tunnel from Loch Raven Dam to Lake Montebello was placed in service.¹⁵

Inlet openings Gatehouse 1958:

In 1958 the old deteriorated screens were removed from the gatehouse inlet openings, as well as a considerable amount of silt and debris. In each of the two openings stoplogs were placed in the stoplog groove and a wooden bulkhead 10 -12 feet high was built at the bottom. On top of each of these new bulkheads 58 - 60 feet of screens were replaced.¹⁶

Water Contract #2064 1971

Construction consisted of a parallel 120 inch concrete pipe conduit, a reinforced concrete transition section to the new pipe, modifications to the left side intake screen and railings and modifications for the installation for a traveling trash rake.

Water Contract # 2393 1977¹⁷

Work in the 1977 contract included removing existing gunite surfacing on the non-overflow sections and surfacing them with stone. Work also included reconstructing the existing 288 feet of concrete spillway crest and surfacing it with pneumatically applied mortar.

A new concrete observation deck was constructed with stone facing, and the existing gatehouse was encased in a stone

¹⁴ City of Baltimore Loch Raven Dam Conceptual Design Report 1993, Section 2.4; also The story of Baltimore's Water Supply, prepared by the Dept. of Public Works pp8-9

¹⁵ Report of the Dept. of Public Works 1954 (synopsis of Gunpowder Falls development) p 18

¹⁶ Report of the Water Board 1958 p64

¹⁷ City of Baltimore Loch Raven Dam Conceptual Design Report 1993 section 2.5

Inventory # BA 2736
faced structure of site walls and enclosures¹⁸. Work also included removing the existing venturi gate and gate valve and replacing it with a 120 inch diameter pipe.

Work also included reinforced concrete arch and fill over about 70 feet of the existing steel pipe, rehabilitating the existing sluice gates and furnishing and installing bar screens and a trash rake to serve the intake bays.

Water Contract #1000 1983

Work included rebuilding the concrete spillway of Loch Raven Dam which included constructing a new concrete spillway crest cap and placing pneumatically applied mortar facing on the overflow section of the principal spillway.¹⁹

Water Contract # 1078 1994

the Zebra Mussel Control Project consists of a structure upstream and across the road from the gatehouse with a conduit to and piping and valves throughout the existing 1922-1977 gatehouse structure.

¹⁸see photos 2-9, present day conditions

¹⁹ see dwgs #5 and 6; Rehabilitation of Loch Raven Dam Spillway, overall plan and elevations, Whitman, Requardt and assoc., engineers sheets 2 and 3 of 3, water contract #1000 February 23, 1983

Item 8: Significance

Summary:

Above in question #7 the history of The Loch Raven Dam is outlined and below the structure is evaluated with regard to the four criteria as outlined in the National Register Bulletin 15. Accordingly, the dam is most appropriately evaluated with Criteria "A", the broad based historical trend of the City's waterworks.

A brief history of the city's waterworks illustrates the vital role of the abundant Gunpowder Falls and the importance of creating the Loch Raven Reservoir to provide the key water source for the expanding populations of Baltimore City and Baltimore County. The Gunpowder became the key water source even before the first dam at Loch Raven was completed in 1881 when in the drought years beginning in 1869 temporary pumping was provided from it Jones Falls. The Gunpowder became the sole source of city water in 1915 when the second dam at Loch Raven was completed and the city could then abandon the fast-silting and polluted Jones' Falls.

The city increased the capacity of the Loch Raven reservoir twice. First in 1917 with a temporary tilting dam addition which brought the crest elevation to 192 feet AMT and then in 1922 with construction of the permanent dam bringing it to its present day elevation of 240 AMT. The next expansion for water capacity had to be made further upstream, as population growth in the Loch Raven vicinity precluded the necessary land acquisitions for flooding acreage. In 1933 the Gunpowder was dammed further upstream forming the Prettyboy Reservoir.

It was not until the completion of Liberty Dam in 1956 that the Gunpowder was augmented by another water source, the North Branch of the Patapsco. The Liberty Reservoir water source was equal in capacity to both reservoirs on the Gunpowder.

In spite of its important role in the history of the Baltimore City Water works system, the Dam at Loch Raven is found to be ineligible for listing on the inventory as an historic structure. This is based on the National Register Bulletin 15 Criteria for "the ability to reflect historic associations". Little if any historic integrity remains of the original Loch Raven Dam structure. The dam was designed to be altered and has constantly been changed, modified, expanded, resurfaced, and built over. The most recent and extensive alterations to the dam in 1977 removed from view all of the original(1912) and early modifications(1915)to the structure.

CRITERIA A:

Association with Historic Events, Patterns (broad trends)

The historic significance of the Loch Raven dam is most appropriately evaluated in the context of Criteria "A": Broad based historical trends or patterns. In this case, the broad based cultural development is the Baltimore City Waterworks. The amount of research, references and data on this subject

create a rich and informative avenue for research and demonstrate a clear cultural significance of the general subject area. It is in this subject area where most information on the Loch Raven dam is found.

[A Brief History of Baltimore City Waterworks

'City Had Troubles with Water'

..."There was a time when Baltimore Town had many adequate springs of excellent and pure water. With time the town grew and because of building activities and increasing population the springs commenced to go dry, as there sources were cut. Contamination followed and a very real need for pure water arose.

In 1787 the Maryland legislature authorized the Baltimore Insurance Company, under the name of the Baltimore Water Company, to supply the city with water drawn from a reservoir. This plan fell through, no doubt due to the same inertia from which the matter had suffered previously. (The Baltimore Insurance Fire Company (was) chartered in 1787 and reorganized in 1791 as the Maryland Insurance Fire Company.)

Added to Fire Risk

Nine years later, council awoke to the fact that the water lack not only was harmful to the citizens but the fire risk was mounting by leaps and bounds in the rapidly growing city. The sum of \$1000.00 was appropriated to rectify this by the erection and maintenance of pumps in the streets.]¹

[In addition to the increasing number of fires, Baltimore had suffered yellow fever epidemics in the years 1794, 1795, 1797 and 1798. There were several theories about the cause of the pestilence, one being the filth in streets and alleys which aided the argument for developing a municipal water system.]²

[In 1797 Samuel Smith, W. Cooke, E. Ellicott, Robert Harper, Thomas McElderry, Alexander McKim and John Howard decided to form the Baltimore Water Company with a capital of \$250,000. The next year the company incorporated.

To raise the money (for the new water system), a lottery was decided upon as the means best adaptable. It was proposed to convey into the city water from Gwynns Falls by pipes. Jones Falls and Herring Run also were to be drawn upon.

The lottery idea was a huge success. As a matter of fact, it was entirely too much of a success, for wild speculation

¹Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"City Had Troubles With Water" Sun 8/26/28

²Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"Early City Water" Dec 26, 1956

followed, with shares selling at absurd prices and reproducing on a small scale the famous "South Sea Bubble" in London. The Baltimore project soon went up in a cloud of smoke mingled with many regrets.

Steady Supply Sought

Although plans and specifications had been drawn up nothing more was done until the Council in February of 1803, due to the fact that Mayor James Calhoun in his annual message called attention to the need of a permanent water supply, passed a recommendation appointing William Cook, James McHenry, Thomas McElderry, John O'Donnell, Robert Stewart, Thomas Tenant, James A. Buckanan, William Jessop and others water commissioners with ample powers of authority for the completion of the project.

In the trust papers given to the new commissioners were included a number of springs forming the water source of Carroll's Run. Operations were commenced to lay the water pipes into the city, but soon the landholders through whose land the pipes were being laid claimed that this wholesale withdrawal of water was injuring them and obtained an injunction against the continuances of the work. Thus the second attempt came to a sudden stop.

The Council of Baltimore admitted defeat, but urged all patriotic citizens to work out a solution. Bryden's Fountain Inn on April 20 1804, was the scene of a public spirited meeting to decide the question. (there was a large and representative attendance and a committee, including among others General Sam Smith and Col. John Eager Howard, was appointed to draw up plans for a water company.)

Committee Reports

The committee appointed at the meeting made its report and recommendations on May 1. Articles of association for the Baltimore Water Company were now drawn up. Books were then opened for the sale of the common stock. Subscriptions were very slow in being secured and great difficulty was experienced in the sale of the stock until insurance companies and local business houses bought up the offering to prevent another collapse.

In 1804 the Baltimore Water Company was definitely organized with an active and energetic board of directors.]³

[The new water company hired John Davis, superintendent of the Philadelphia water works, to come to the city to plan the new supply. His plan was simple. It was to take water from Jones Falls (at a point below the mills so that mill rights would not have to be bought), conduct it to a pumping station located at what is now the southwest corner of Calvert and Center streets and pump it to a reservoir on the hill to the

³Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"City Had Troubles With Water" Sun 8/26/28
page 8.3

west, where the Enoch Pratt Library now stands. From here the water could be distributed to the homes of customers by means of pipes made of bored wooden logs.]⁴

[Jones Falls was decided as the best stream from which to secure the water, since the flow was more evenly balanced, and not fluctuating with a lack of rains, as were most of the other water courses. With this decision reached, it was planned to purchase the water rights as high up as Whitehall Mill, but the land owner fixed prices too high and this project was abandoned.

Finally, rights were purchased after much controversy and debate, along that part of Jones Falls near the John Street Bridge. Next a piece of ground was secured at Center and Calvert streets. Here a reservoir was constructed to contain water in reserve from the falls. At a later date another reservoir was built on Howard's Hill.

It is interesting to note the kind of pipes as well as prices paid for materials used in this work. A few of the pipes were cast iron, ranging from two and one-half inches in diameter to six inches, and the cost was between "\$65 and \$85 a ton." Most of the pipes, however, were made of wood, locust or spruce or pine preferred. These were from twelve to fifteen inches in diameter with a four-inch bore.

The Fall of 1806 saw the new company ready to supply the city with water and it is not unreasonable to suppose that by this time there were many in the city who felt that a water system was but an idle dream.]⁵

[In 1838 the Chase Reservoir was constructed near the corner of present day Charles and Chase streets where the Hotel Sheraton-Belvedere is now located. This was soon joined by a second reservoir so that the combined capacity of the two was about 12 million gallons. Water was supplied by the Salisbury Pump House on Jones Falls which used two water wheels to drive its pumps. There was a steam engine for emergency use in case the flow in the Jones Falls was low.

In 1846, it was necessary to build the Mount Royal Reservoir near the present site of Pennsylvania Station. This 15 million gallon structure was supplied by gravity flow from a mill dam across Jones Falls, served the growing eastern section of the city and, besides, was used as a storage basin from which the Chase Reservoir could be supplied.

⁴Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"Early City Water" Dec 26, 1956

⁵Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"City Had Troubles With Water" Sun 8/26/28

But trouble was being experienced with the falls. The growth of the city to the north together with the location of several factories along the stream lead to pollution. Also there were a number of farms where livestock used the stream and its tributaries for drinking.

Search was made for a new source. Four different watersheds were investigated: the upper Jones Falls, Gwynns Falls, the Patapsco River and the Gunpowder. On August 31, 1853, the city's water commissioners submitted their report. Thirteen different plans had been studied. ...Water analyses gave a high rating to the Gunpowder for purity, a low one to Jones Falls and intermediate ratings to the other streams.

The commissioners estimated that by 1860 Baltimore would need 16.74 million gallons per day for its expected 279,000 inhabitants and that by 1870 the population would increase to 461,000 with the water need increasing correspondingly to 27.66 million gallons per day.

Meanwhile, the Baltimore Waterworks Company was in trouble. It had always had difficulty in keeping its supply of water in step with the burgeoning population which more than doubled every twenty years. As early as 1830 the City Council inquired into the amount the company would want for transferring to the city its property and its rights. The company managed to stave off this threat to its existence by starting an expansion of its system, but the unhappy situation continued, with the company ever trying to make a profit and the Council always dissatisfied with service, and more particularly, with the adequacy of the supply. Finally, in 1854, the city bought out the company for the sum of \$1,350,000.]⁶

[The sale embraced not only the water works proper, but several large mills and much valuable real estate. The water works consisted of two small pools water in the valley of Jones' Falls formed by the original dam of the Mount Royal and Rock Mills, and from which the entire supply of water was conducted in large iron mains to a receiving reservoir within the city limits on the east branch of the falls, a short distance below Charles Street Bridge. From this reservoir water was delivered by gravity to all portions of the city below elevation 60 amt; for the higher portions of the city not exceeding 136 amt, the water was pumped to a second reservoir at the present location of Charles and Chase streets.

After acquiring the water company the City Council, by ordinance approved December 29 1854, created a water department, with a board of three Commissioners. Recognizing the need of an improved supply, numerous surveys of the available streams about the city were made and the opinions of the engineers obtained. The preponderance of this opinion

⁶Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"Early City Water" Dec 26, 1956
page 8.5

avored the Gunpowder River, the development of which one engineer, Mr. Sickles, estimated would cost \$2,135,000. Nothing was definitely accomplished until July 11, 1857, when an ordinance was passed authorizing the obtaining of an increased supply of water from Jones' Falls despite the advantages offered by the Gunpowder River.

Work was started on a dam across a narrow pass in the valley, about eight miles from the city, in 1858 by Charles P. Manning. The dam, (with a spillway Crest of 220 feet above sea level), and impounding basin were available for use in 1860 and entirely completed in 1861. The impounding reservoir, with a capacity of 400 million gallons, was called Lake Roland, and was connected by conduits to Hampden Reservoir, then known as Swann Lake. The Hampden reservoir was, in turn, connected to the distribution system through the valley of Jones' Falls by cast iron water mains.

The Mount Royal reservoir, located on what was formerly a part of the Mount Royal Mills Company, was completed in May, 1861, and used as a distributing reservoir for the low-service zone, Hampden reservoir being used to supply the high-service zone. The construction of Druid Lake, first called Lake Chapman, was started March 7, 1864, and completed January 1, 1868, under the supervision of Robert K. Martin, assistant engineer.]⁷

[During a prolonged drought in the fall of 1869, when the city was threatened with a water famine, it became apparent that the Jones' Falls supply would not suffice for the future. After due investigation it was decided that the Gunpowder Falls should be developed as a source of supply, and in 1873 a temporary pumping station was constructed. Water was pumped, when needed, during the years 1874 to 1881 inclusive, from Gunpowder Falls through a pipeline to Roland Run, a tributary of Jones Falls.]⁸

[In the Water Board report of 1873 the water engineer emphasized the fact that those interested in the water supply of the city had been fighting for the Gunpowder supply for a period of 20 years. As a result of the current agitation an ordinance was passed on February 12, 1874, authorizing the issuance of city bonds in the amount of \$4million to complete the Gunpowder supply. This action was covered by an enabling

⁷Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"The Water Supply of Baltimore" by Bernard Siems, former City Water Engineer of Baltimore, three part article
Baltimore, July 1928

⁸Department of Public Works, Bureau of consumer Services
"The Story of Baltimore's Water Supply"
revised 1958,1963,1966,1970

act of the Legislature April 1, 1874, and subsequently ratified by the voters.]⁹

[In the following year, 1875, construction of the permanent supply was begun, the entire program of improvements being completed in 1881. The system constructed at that time consisted of a stone dam across Gunpowder Falls, a large reservoir known as Lake Montebello, a tunnel connecting the two structures, and the necessary distribution mains and conduits.]¹⁰

In order to make way for the new reservoir [the village of Warren and part of Phoenix were purchased and razed, one and a half miles of Pennsylvania Railroad track was relocated, and about 4000 acres of land purchased and cleared preparatory to the flooding.]¹¹

History of the Gunpowder Area

[The Gunpowder Falls basin lies mainly within Baltimore County, although it originates in Pennsylvania just north of Lineboro, Maryland.

...Though agriculture was the mainstay of Baltimore County throughout the 18th century, the Gunpowder Falls initially became important as the site of the first papermill in Maryland. William Hoffman, a papermaker from Pennsylvania, favored the Gunpowder's clear water to manufacture paper for the Continental currency following the American Revolution.

By the 1880's, many changes had taken place along the Gunpowder Falls. The forests had been turned to fields and more papermills and other industries dependent on good water had been constructed on the Gunpowder basin. Erosion of the land by careless farming caused the head of the Gunpowder River to become a tidal marsh. Many smaller springs had dried up and hillsides baked by the sun allowed the rains to run off in flooding. However, the good quality water of the Gunpowder Falls is what saved the area from complete disaster.]¹²

Phoenix

⁹Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"The Water Supply of Baltimore" by Bernard Siems, former City Water Engineer of Baltimore, three part article
Baltimore, July 1928

¹⁰Department of Public Works, Bureau of consumer Services
"The Story of Baltimore's Water Supply"
revised 1958, 1963, 1966, 1970

¹¹Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"The Water Supply of Baltimore" by Bernard Siems, former City Water Engineer of Baltimore, three part article
Baltimore, July 1928

¹²Department of Public Works Museum Archives
History of the Loch Raven system
"The Gunpowder Falls...Water as Valuable Land", draft
page 8.7

[The town used to be a prosperous mill town, with plenty of work for the 600 persons who lived there, but now the cotton mill is idle and most of the people who worked in it moved away to find employment elsewhere. The mill is owned by the United States Cotton Duck Corporation and for nearly three years it has not been in operation. Most of the machinery has been taken away and sent to other mills, and the people say the mill will probably never start up again.]

Warren

Warren, directly in the bed of the proposed lake and three miles from Cockeysville, is the opposite of Phoenix. Situated in a deep hollow, between towering hills, it hums with the industry of the cottonduck mill. Unlike in Phoenix, the mill still runs, and it is said it has never closed down except for necessary repairs in the last 22 years.

The history of Warren dates back more than 100 years and there are families living in the village or close to it whose ancestors have always lived in that section of the county. The people who work in the mill have saved a portion of their earnings and have bought little patches of ground and built small houses.]¹³

Forming Loch Raven Reservoir

...[The first work for the introduction of the Gunpowder water directly into the city was started on December 3, 1875, at Lake Montebello. The appropriation provided for the following work: The construction of Lake Montebello, covering an area of 60 acres, with a capacity of 500 million gallons; the construction of an impounding dam at Loch Raven, with a crest elevation of 170 A.M.T. (later datum 171.2), and a reserved capacity of 510 million gallons; a tunnel 12 feet in diameter and seven miles long connecting the Loch Raven reservoir with Lake Montebello, Lake Clifton, a storage reservoir and a 40 inch cast-iron feeder main from Lake Clifton to the city limits. Also \$200,000 was provided for existing mains on the distribution system.]

The building of the tunnel occupied five years. Its depth below ground varies from 65 feet to 360 feet. The entire distance is through solid rock, except for two miles, which is through material requiring brick lining.

...The city was supplied from Jones Falls and Gunpowder Falls, two sources, from 1881 until 1915. From time to time, during this period, various structures were added to the water system, notably Eastern Pumping Station, Lake Clifton, Guilford Reservoir, Mt. Royal Pumping Station, Lake Ashburton, Arlington Standpipe, and Roland Standpipe.

...A growing realization of the undesirability of Jones' Falls supply, due to its pollution, created an undercurrent of dissatisfaction among the engineers of the city, and an

¹³Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore-Loch Raven
"Water To Evict Them" Sun Jan. 13, 19--
page 8.8

effort was made to procure a loan of \$5 million for the purpose of constructing a new impounding reservoir on the Gunpowder at Loch Raven. As it was evident that the loan would not be granted immediately every effort was made to abate pollution of both the Jones' Falls and Gunpowder River watersheds.

Knowing the absolute necessity of enlarging the water supply source, Mr. Quick, anticipating the eventual passage of the loan, ordered a field survey of the Gunpowder watershed, particular attention being paid to the tentative location of a dam. Numerous borings and shafts were sunk to determine the nature of the soil and depth to bedrock.

...It was in 1906, during the administration of Water Engineer Quick, that the present highly practical system of records was inaugurated, the first step in the work being the precise locating of water-supply services.

...The most important occurrences of the year 1908 were the passage by the Legislature of the \$5million Loan Enabling Act and the passage by the City Council of an ordinance authorizing the submission of the loan to popular vote and its approval at the polls in November. Efforts were immediately made to start work on the Gunpowder. Construction was begun on the new high-service reservoir, recommended as early as 1896, the site of which after much legal delay was finally selected as the Williams property on the Liberty road, west of the Western Maryland Railroad.

Mssrs. John R. Freeman and Frederick P. Stearns, consulting engineers, were appointed by the Mayor to investigate and report as to the best method of improving the water system under the \$5million loan.]¹⁴

[In 1912, as a result of a study completed two years before, the city began work on the Gunpowder supply improvements. These consisted of a new dam on the Gunpowder Falls about 2500 feet upstream from the original dam, a purification plant, and conduits. The new dam, with a crest elevation of 188 feet above mean low tide, was built of such size and strength that it could be increased to a height of 240 feet above mean low tide at a later date when conditions might demand such change.

The Montebello Filtration Plant was constructed on the east side of Hillen Road, north of 33rd Street. All of these improvements were completed and placed in service in 1915, at which time the use of the Jones Falls supply was discontinued.

¹⁴Enoch Pratt Free Library --Maryland Room
Vertical File: Water Supply- Baltimore- History
"The Water Supply of Baltimore" by Bernard Siems, former City Water Engineer of Baltimore, three part article
Baltimore, July 1928
page 8.9

Through the annexation in 1918 of nearly 50 square miles of the territory surrounding Baltimore City and the purchase of many private water companies which operated in the annexed area and beyond, the need for water increased rapidly. The crest of the Loch Raven Dam was raised to elevation 240.

A second filtration plant was constructed at Montebello and, following completion of the new plant in 1928, the pumping system was improved. Eastern Pumping Station, which raised water into Guilford Reservoir, was replaced by Hillen Pumping Station; Mt. Royal Pumping Station was replaced by Vernon Pumping for raising water to Lake Ashburton; the Guilford and Ashburton pumping stations were built; and three small pumping stations supplying outlying sections of distribution system were enlarged and modernized. The Prettyboy Dam and Reservoir were built on the Gunpowder Falls. All of these structures were in service by 1936.

The Prettyboy Dam and Reservoir were completed in 1933. Prettyboy Dam is a concrete gravity dam located on the Gunpowder Falls about three miles southwest of Parkton. The crest of the dam is 520 feet above sea level. A reinforced concrete arch bridge, with a roadway 20 feet wide and a footway on each side, crosses this dam. (p14)

The industrial activity due to World War II was reflected in the demand for water and plans were made to build a dam and reservoir on the North Branch of the Patapsco River near Falls Run. A tunnel connecting the reservoir with the Montebello Filtration Plants, the dam and other structures needed before the river would be impounded were completed during 1954. Liberty Dam is located on the North Branch of the Patapsco River at a site approximately two miles south of Liberty road. The crest of the dam is at an elevation of 420 feet above sea level. The dam was completed in 1956. (p14)

In September 1953, construction of a new filtration plant in the vicinity of Lake Ashburton was started. The Ashburton Filtration Plant was activated on June 5, 1956.

Later developments for water tapped the Susquehanna River Supply. The Susquehanna Water Supply Project includes the Conowingo Intake and The Deer Creek Pumping Station, connecting tunnels and pipelines.]¹⁵

Overview

The role of the High Dam at Loch Raven dam plays in the history of Baltimore City Waterworks is as a reflection of the growing City in the years between 1912 and 1933. The annexing of land and population growth are mirrored in enlargements to the reservoir and dam and improvements to the tunnel to the Lake Montebello filtration system. The tapping of the plentiful Gunpowder Falls augmented the City's first

¹⁵Department of Public Works, Bureau of consumer Services
"The Story of Baltimore's Water Supply"
revised 1958, 1963, 1966, 1970
page 8.10

water source, the fast-silting Lake Roland, and soon the Gunpowder Falls became Baltimore City's leading source of water.

The development of the Gunpowder Falls Watershed and its facilities are recorded in the Annual Report(s) of The City Water Engineer. Projects at Loch Raven were clearly responses to the constantly growing demands on the water supply system. Loch Raven was the principal reservoir for the City between the years of 1912 and 1933. But by this time the area population had grown so much and so close that land acquisitions for reservoir acreage had to move upstream and Prettyboy dam and reservoir was developed¹⁶.

This constant modifying, improving and repairing is intrinsic to the very nature of the waterworks projects and the dam at Loch Raven. Of the original work done between 1912-14 all above ground work was redone during the raising of the dam in 1922. Of this 1922 work, most visible were the gatehouse and non-overflow sections. Both of these structures were significantly redone in 1977, with the addition of the observation deck, the parged surfacing over the non-overflow sections and resurfacing of the spillway (1977&1983).

These changes to the dam at Loch Raven have been significant. No visible aspect of the dam in its present condition is original to the 1912 construction. For these reasons, the integrity of the dam is, from the perspective of historic significance, considerably diminished.

The Loch Raven dam is still a vital part of the Baltimore City Waterworks, but fails to qualify as an historic structure reflecting the history of the city's waterworks. Based on the National Register Bulletin 15 Criteria for "the ability to reflect historic associations". Little if any historic integrity remains of the original Loch Raven Dam structure. The dam was designed to be altered and has constantly been changed, modified, expanded, resurfaced, and built over. As seen in current photographs of the site, the most recent and extensive alterations to the dam in 1977 removed from view all of the original(1912) and early modifications(1915)to the structure. The present condition of the Loch Raven no longer conveys the dam's significance in the history of the water works.

CRITERIA B:

Association with Important Persons

In the context of well-known, famous or significant people of note, nationally or of statewide merit:

No references have been found that mention ties to individual persons of historical merit. References are consistently with regard to the system of the waterworks, the collaborative nature of its development, and the construction methods for the work in place.

CRITERIA C:

Distinctive Design, artistic or physical character, or representative work of a master

In the context of concrete gravity dams in the country, references have not been found citing Loch Raven dam as significant in design innovation.

Local references to the design of the dam at Loch Raven focus largely on the process of developing analytical reports based on data gathering about the water flow on the Gunpowder Falls, area and volume of water needed to service the City needs, and the safe limit of flooding to create the reservoir which is the result of establishing the height of the dam.

The system for the Loch Raven dam was recommended by former City Water Engineer Alfred M. Quick, and corroborated in a separate report prepared by John R. Freeman and Frederick P. Stearns, and the design formulae were based on "High Masonry Dam Design" by Morrison and Brodie.¹⁷ The engineers working on the Loch Raven design referred to other dam examples to address the significant safety issues concerning the design of the dam. Failure of the dam at Austin, Pennsylvania at about the same time led the designers to take precautions preventing upward pressure from under the bottom of the dam and internal pressure in the concrete from seepage into the concrete joints. References were also made to Olive and Kensico dams in the New York Water System. These were referred to for their design of porous vertical drains which were redesigned for Loch Raven to be the horizontal and vertical drain system relating to the concrete lifts in construction. In the field of concrete gravity dams, however, The Dam at Loch Raven in general, nor its drainage system, specifically, are found mentioned in technical and historical books on the subject of dam design and construction.

CRITERIA D:

Potential to provide information about history or prehistory

The potential to provide information has for the most part been realized in the documentation of the dam, and its construction, and changes to it over time.

As documented in memorandum dated August 18, 1992 presented in the Loch Raven dam Environmental Assessment dated August 1993, Dr. Gary Shaffer of the Maryland Historical Trust conducted a review of the site. The review concluded there are no concerns for Archeological resources at the site of Loch Raven dam.

¹⁷"Report of the Water Board" 1914
page 8.12

Item 9:

Major Bibliographical References

Enoch Pratt Maryland Room Vertical File: "Water Supply, Baltimore History" review of entire file contents--see individual footnotes for specific references

Enoch Pratt Maryland Room Vertical File: "Loch Raven" review of entire file contents--see individual footnotes for specific references

Report of the Water Board 1913

Report of the Water Board 1914

Report of the Water Board 1917

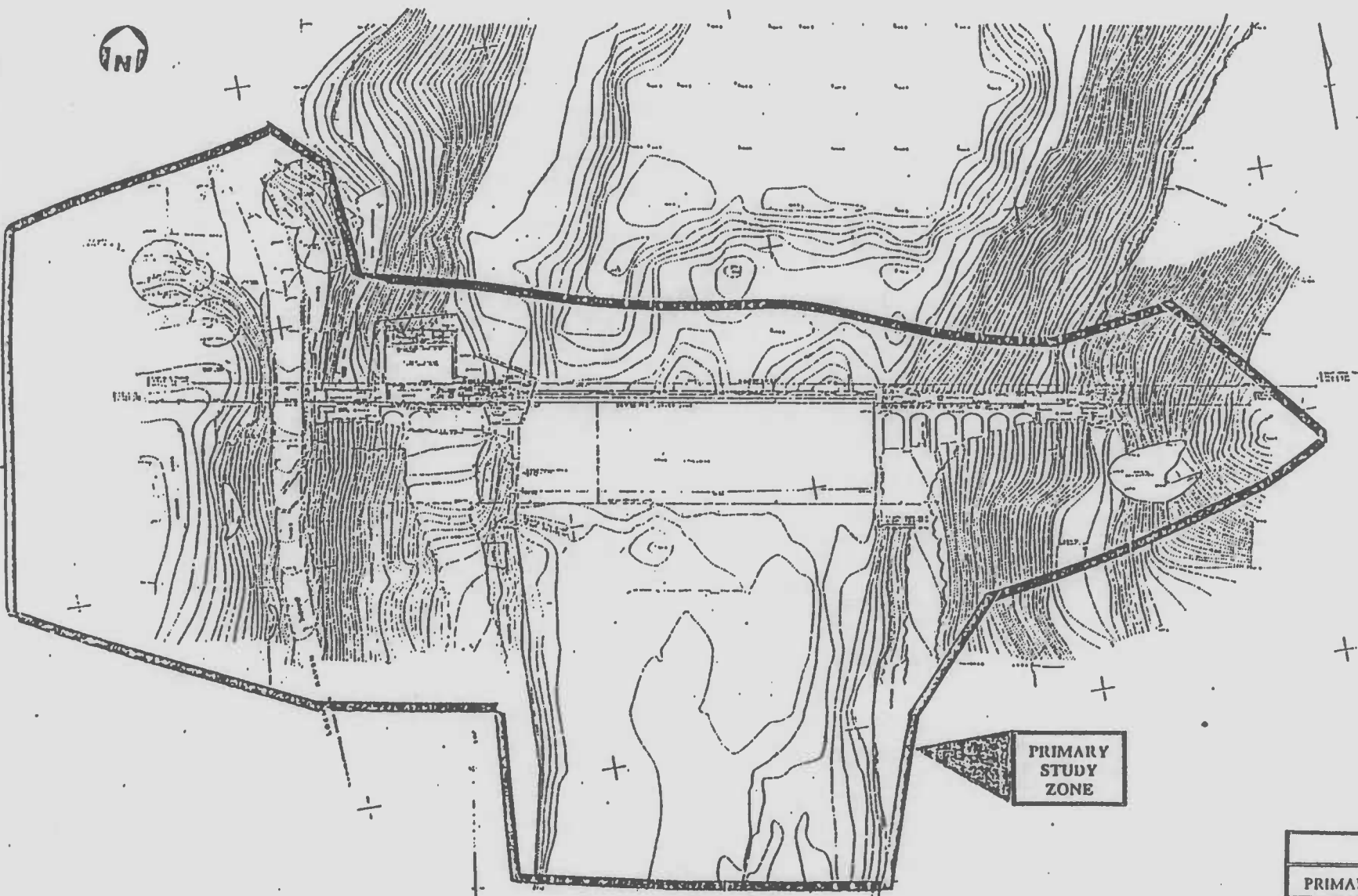
Report of the Water Board 1958

Department of Public Works Contract 2393

Baltimore City Water Contract 1000

Baltimore City Water Contract 1078

City of Baltimore Loch Raven Dam Conceptual Design Report
1993



Resource Sketch Map
 Inventory # BA 2736
 Upper Dam at Loch Raven
 Towson Quadrangle, Towson Maryland

FIGURE
PRIMARY STUDY
LOCH RAVEN ENVIRONMENTAL OVERVIEW
SANDELL FLEMING CONSULTANTS AND ASSOCIATES, P.A.

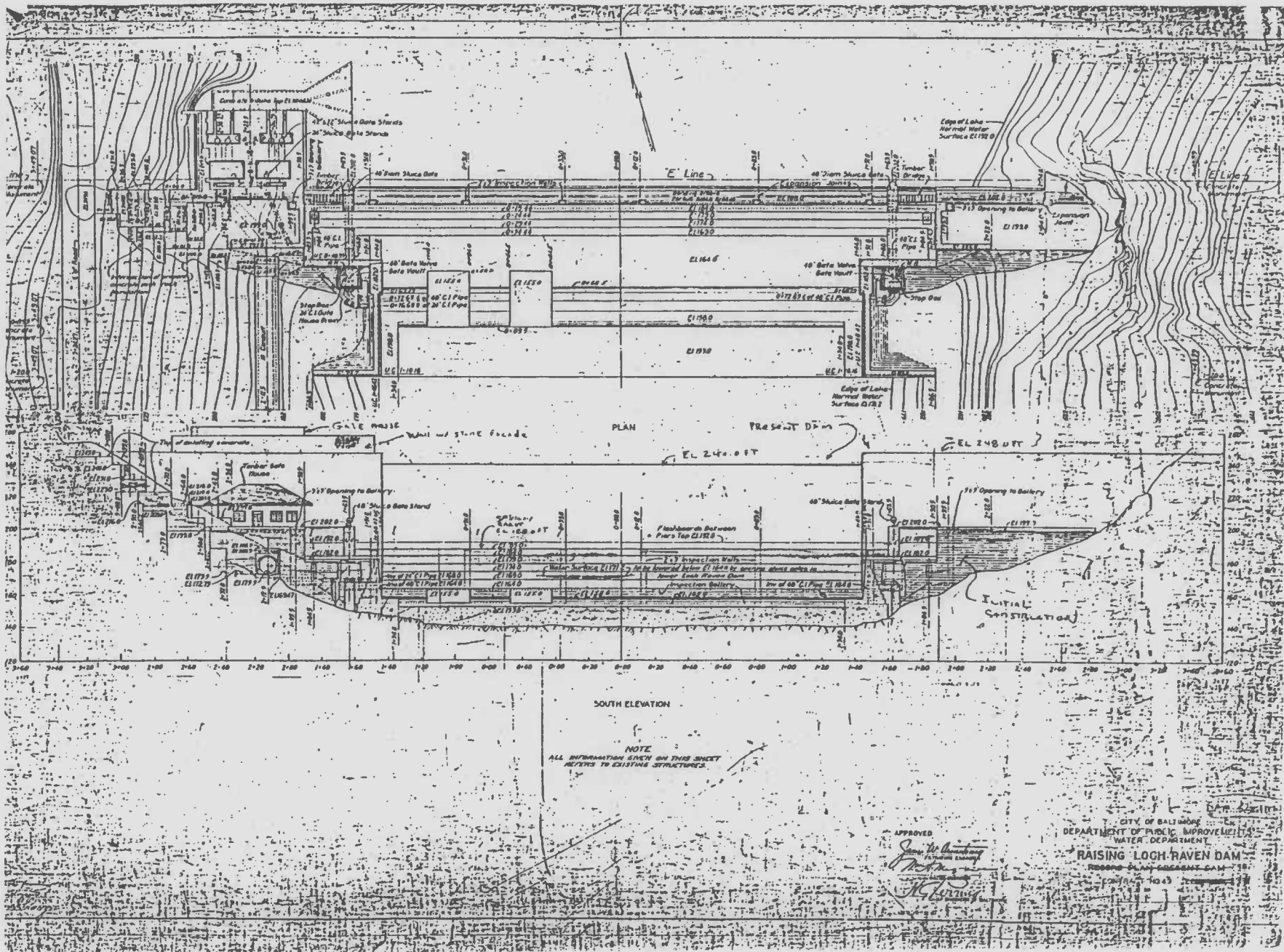
Plan and South Elevation

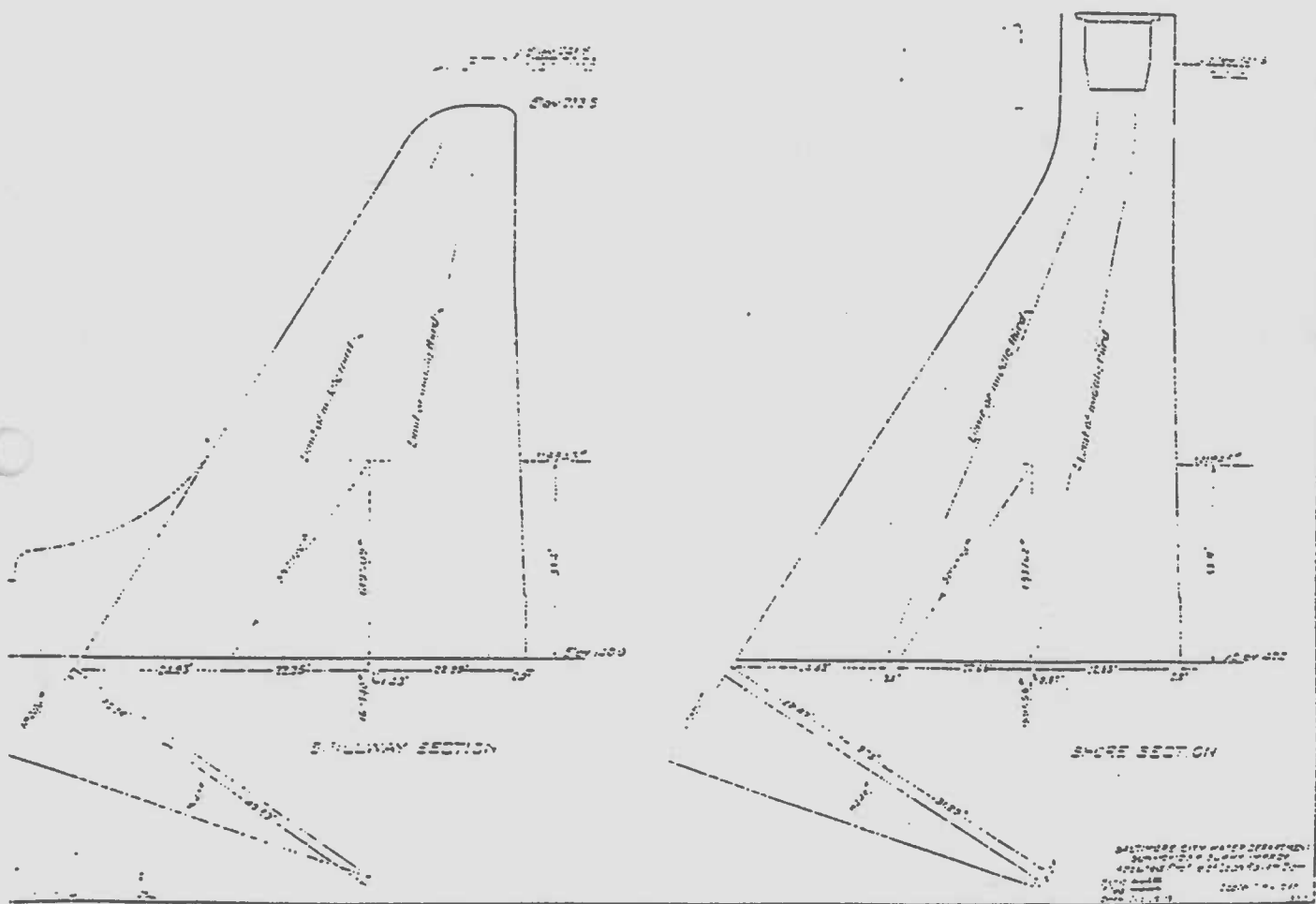
Inventory # BA 2736

Upper Dam at Loch Raven

Towson Quadrangle, Towson Maryland

from raising the dam, record plan, present dam, contract #49
City of Baltimore, February 23, 1924





Design Profile

Inventory # BA 2736

Upper Dam at Loch Raven

Towson Quadrangle, Towson Maryland

Baltimore City Water Department Gunpowder Supply Improvement

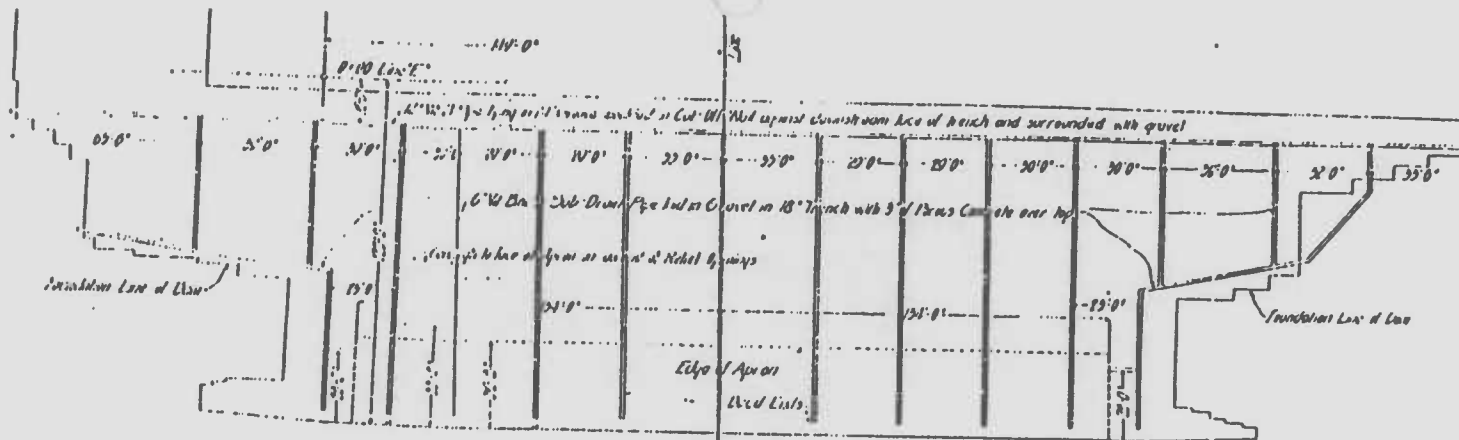
adopted profile of Loch Raven Dam Dec. 20, 1913

from Report of the Water Board, 1913

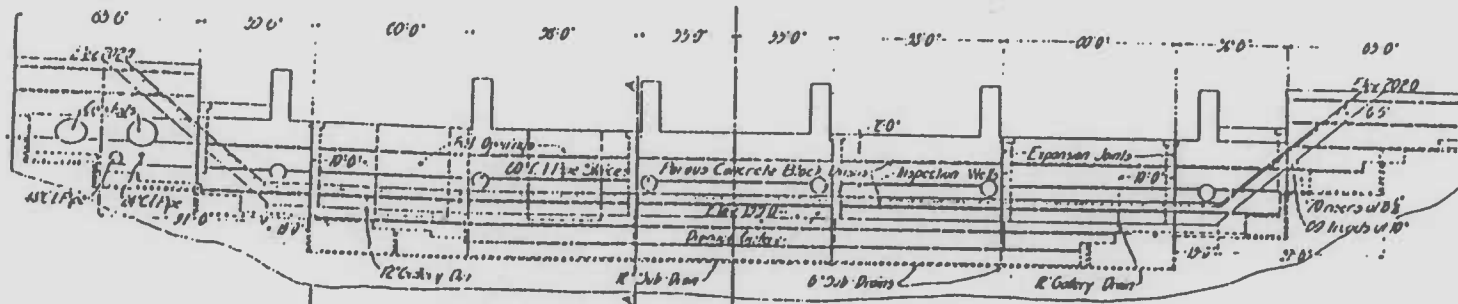
Page 3

Drainage System

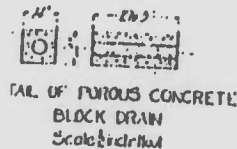
Baltimore City Water Department Gunpowder Supply Improvement
Inventory # BA 2736
Upper Dam at Loch Raven
Towson Quadrangle, Towson Maryland
Contract no. 1 serial # 190 date: 2-8-12



FOUNDATION PLAN OF DAM SHOWING LOCATION OF SUB-DRAINS

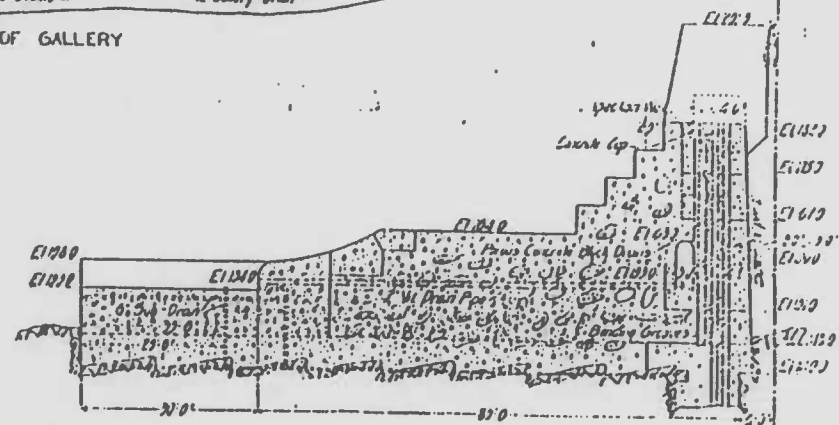


VERTICAL SECTION ON CENTER LINE OF GALLERY



DETAIL OF TYPICAL CONCRETE BLOCK DRAIN SCALE 1/2" = 1'-0"

HORIZONTAL SECTION OF DAM AT ELEVATION 170.0



SECTION A-A

FILE NO. 604-A-17

BALTIMORE CITY WATER DEPARTMENT-GUNPOWDER SUPPLY IMPROVEMENTS DRAINAGE SYSTEM

SCALE 1/2" = 10 & 20 FEET

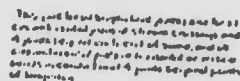
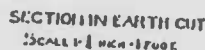
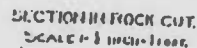
APPROVED [Signature] WATER ENGINEER

9 SHEETS, SHEET NO.3

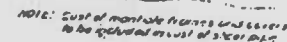
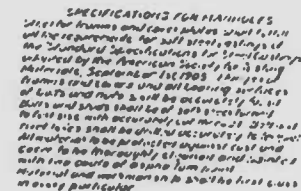
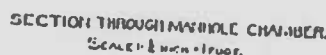
CONTRACT NO.1

SERIAL NO. 190
FILED 51-A-32
DATE 2-8-12

A



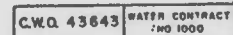
This fare for all countries, routes, ports
and all classes of service, is of benefit
of comfort.



FILE NO 604-A-12

CONTRACT NO. 3

SERIAL NO. 280
FILED 63-A-1-
DATE SEP 2 1964



W-109

Rehab. of Loch Raven Dam Spillway
Inventory # BA 2736
Upper Dam at Loch Raven
Towson Quadrangle, Towson Maryland
Overall Plan and Elevations Whitman Reguadt & Associates,
Engineers
Sheet 2 of 3 Water Contract # 1000 February 23, 1983

Rehab. of Loch Raven Dam Spillway

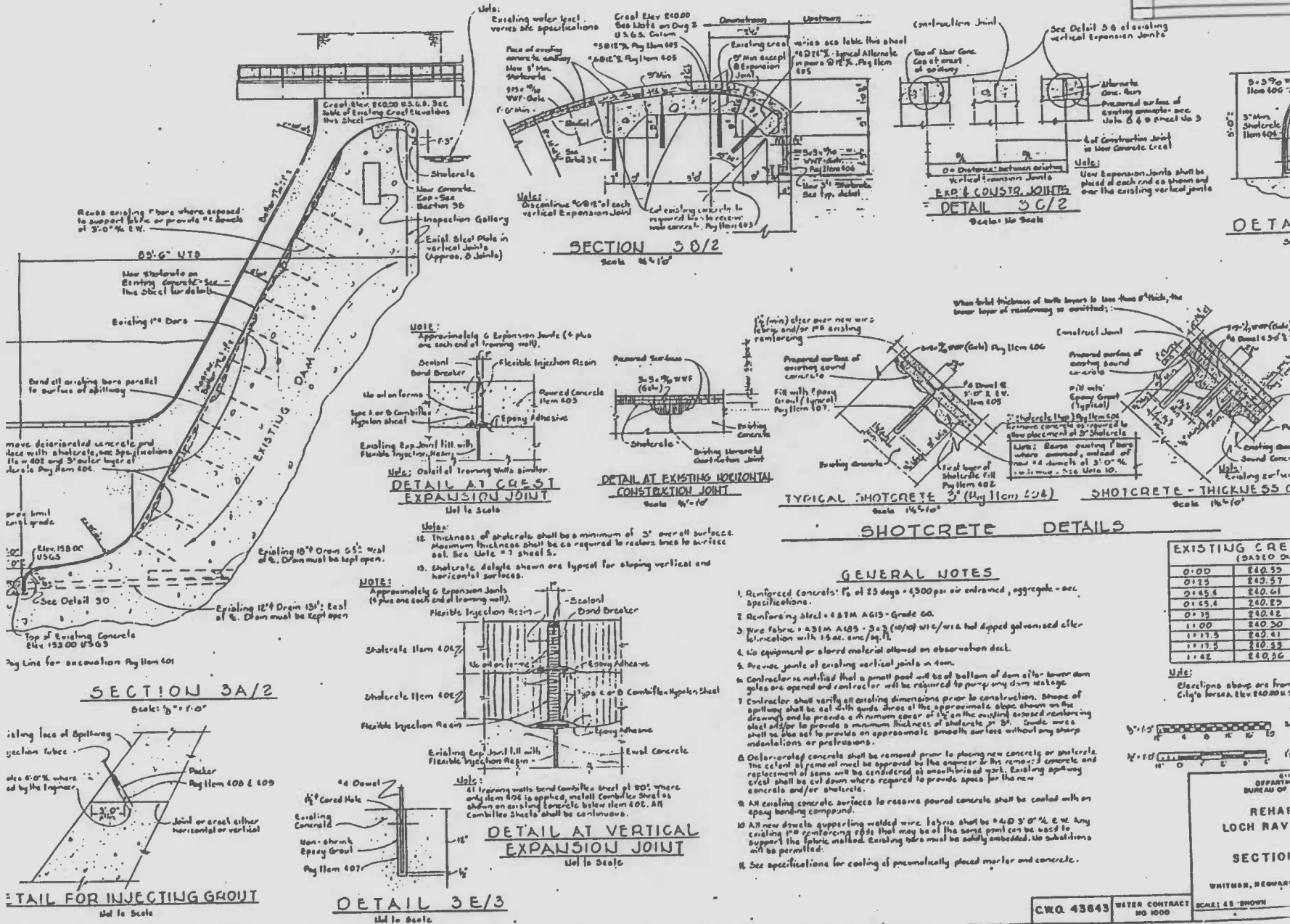
Inventory # BA 2736

Upper Dam at Loch Raven

Towson Quadrangle, Towson Maryland

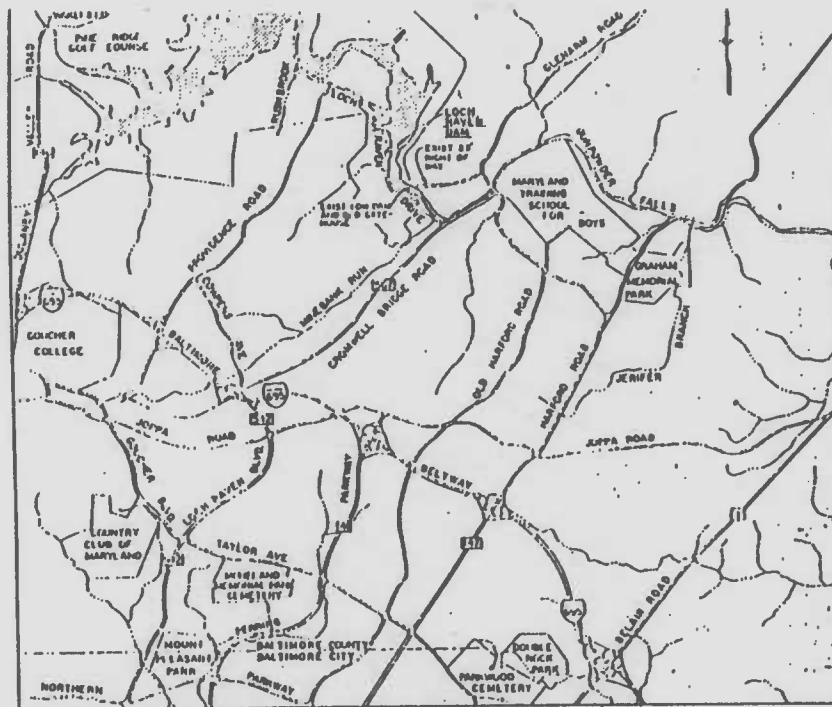
Overall Plan and Elevations Whitman Reguadt & Associates, Engineers

Sheet 3 of 3 Water Contract # 1000 February 23, 1983



Locational Map

Inventory # BA 2736
Upper Dam at Loch Raven
Towson Quadrangle, Towson Maryland



LOCATION MAP
SCALE 1" = 1/2 MILE

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
		TITLE SHEET
1	G-1	LOCATION MAP, LIST OF DRAWINGS
2	A-1	OVERALL PLAN AND ELEVATIONS
3	A-2	SECTIONS AND DETAILS
4	A-3	SECTIONS AND DETAILS
5	A-4	GATE HOUSE AND OBSERVATION DECK PLAN, DETAILS, FINISH SCHEDULE
6	A-5	ELEVATIONS AND CROSS SECTIONS
7	A-6	WALL SECTIONS, ROOF PLAN AND CEILING PLAN
8	A-7	WINDOW AND DOOR SECTIONS
9	A-8	REMOVABLE ALUMINUM SCREENS
10	A-9	MISCELLANEOUS SECTIONS AND DETAILS
11	A-10	PRECAST PAVER, COPING AND HANDRAIL PLAN, MISCELLANEOUS SECTIONS AND DETAILS

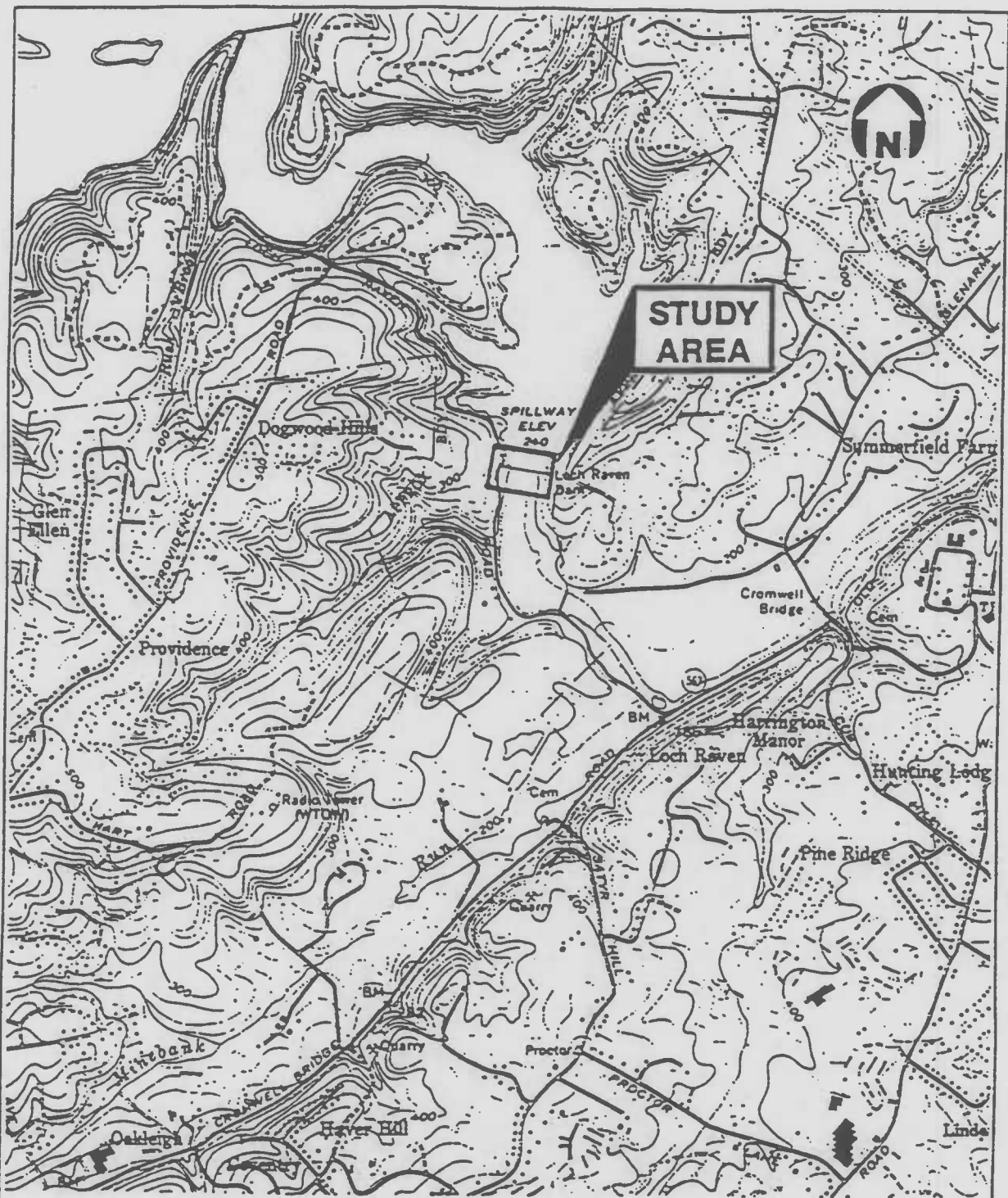
SHEET NO.	DWG. NO.	TITLE
12	S-1	OBSERVATION DECK, FRAMING PLAN AND DETAILS
13	S-2	OBSERVATION DECK, SECTIONS
14	S-3	OBSERVATION DECK, SECTIONS AND DETAILS
15	S-4	BAR SCREENS, PLANS AND SECTIONS
16	S-5	BAR SCREENS, SECTIONS AND DETAILS
17	C-1	REMOVAL OF VENTURI AND REPLACEMENT WITH 120" STEEL PIPE
18	C-2	REMOVAL OF GATE VALVE AND REPLACEMENT WITH 120" STEEL PIPE
19	C-3	FILL OVER EXISTING 120" STEEL PIPE & PROPOSED CONTRACTOR'S AREAS
20	E-1	ELECTRICAL WORK - I
21	E-2	ELECTRICAL WORK - II



CITY OF BALTIMORE

CONTRACT NO. 27361

DESIGNED BY: [Name]
CHECKED BY: [Name]
APPROVED BY: [Name]
DATE: 12/31/2010
SHEET NO. 1 OF 11



TAKEN FROM: USGS TOPOGRAPHIC MAP
TOWSON, MD QUADRANGLE

FIGURE 2
STUDY AREA MAP
SCALE 1" = 2,000'

USGS Quadrangle Map

Inventory # BA 2736
Upper Dam at Loch Raven
Towson Quadrangle, Towson Maryland



BA 2736

FIRST DAM at LOCH RAVEN

BALTIMORE COUNTY, MD

photographer: KATIE O'NEARA

10/96

negatives: SHPO



BA 2736

LOCH RAVEN DAM

LOOKING EAST TOWARD 'MUGGER PROJECT' PIPES

BALTIMORE COUNTY, MD

photoby: KATIE O'MEARA

10/96

negs: SHPO



BA 2736

LOCH RAVEN DAM

- LOOKING NORTH TO SPILLWAY

BALTIMORE COUNTY, MD

photographer - KATIE O'MEARA

10/96

negatives -

SHFO



BA 2736

LOCH RAVEN DAM

-LOOKING EAST OVER OBSERVATION DECKS

Baltimore County, MD

photographer: KATIE O'NEARA

10/96

negatives: SHPO



BA 2736

LOCH RAVEN DAM

- LOOKING SOUTH TO GATE HOUSE ENCLOSURE

BALTIMORE COUNTY, MD

photographer: KATIE O'MEARA

10/96

negatives: CHPO